

REMARKS

The Office Action dated April 29, 2009 has been received and carefully noted.

The following remarks are submitted as a full and complete response thereto.

Claims 1-5 are currently pending in the application. Claim 6 was previously cancelled. Therefore, claims 1-5 are respectfully submitted for consideration.

The Office Action rejected claims 1-6 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Forsberg (U.S. Reissue Patent No. RE6,479) (“Forsberg”), in view of Yamamoto et al. (U.S. Patent No. 4,256,591) (“Yamamoto”). The Office Action took the position that Forsberg discloses all the elements of the claims with the exception of “the amount of molybdenum disulfide solid lubricating agent as 10% to 40% by mass,” “2 to 20% by mass of an attaching agent having both lubricating and dispersing properties,” “2 to 20% by mass of an agent having both wetting characteristics and moisture evaporation-accelerating actions; and water,” and “the aqueous lubricant for plastic working.” The Office Action then cited Yamamoto as allegedly curing some of the deficiencies of Forsberg. The Office Action further alleged that the remaining deficiencies are “result effective [variables],” and that “discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art.” (See Office Action at pages 3-6).

Applicants respectfully submit that it appears the reference to claim 6 is a typographical error, as claim 6 was previously cancelled. With respect to claims 1-5, the rejection is respectfully traversed for at least the following reasons.

Claim 1, upon which claims 2-5 are dependent, recites an aqueous lubricant for plastic working, which includes 10 to 40% by mass of an inorganic solid lubricating agent, and 2 to 20% by mass of an attaching agent having both lubricating and dispersing properties. The aqueous lubricant further includes 2 to 20% by mass of an agent having both wetting characteristics and moisture evaporation-accelerating actions, and water.

As will be discussed below, Applicants respectfully submit that the Office Action has failed to establish a *prima facie* case of obviousness, because the cited reference of Yamamoto, when considered as a whole, teaches away from the claimed invention, one of ordinary skill in the art would not be motivated to combine the cited references of Forsberg and Yamamoto to arrive at the claimed invention.

Forsberg generally discloses a composition comprising water and at least one carboxylic salt dispersed or dissolved in the water. The carboxylic salt is derived from: (a) at least one hydrocarbyl-substituted carboxylic acid or anhydride, or at least one derivative formed by reacting the at least one hydrocarbyl-substituted carboxylic acid or anhydride with a reactant; and (b) at least one amine, alkaline earth metal, or alkali or alkaline earth metal compound. The reactant may be: (1) an ammonia, (2) an alcohol, (3) a primary amine; (4) a secondary amine; (5) a hydroxylamine; or (6) any combination of

two or more of any of (1)-(5). (See Forsberg at col. 2, lines 23 – 53). The alcohols used to make the derivative include alkylene glycols and polyoxyalkylene alcohols. (See Forsberg at col. 8, lines 48-51).

Forsberg further discloses aqueous compositions characterized by an aqueous phase with the carboxylic salts dispersed or dissolved in the aqueous phase. The aqueous compositions encompass both concentrates and water-based functional fluids. The concentrates and water-based functional fluids can include other conventional additives including surfactants, thickeners, oil-soluble and water-insoluble functional additives (such as anti-wear agents, extreme pressure agents, dispersants, etc.), and supplemental additives such as corrosion-inhibitors, shear stabilizing agents, etc. Thickeners include poly-n-vinyl pyrrolidones, homo- and copolymers as well as water-soluble salts of styrene, maleic anhydride, and isobutylene maleic anhydride copolymers. (See Forsberg at col. 27, lines 6-9). Oil-soluble and water-insoluble functional additive include certain solid lubricants such as graphite, molybdenum disulfide, and polytetrafluoroethylene and related solid polymers. (See Forsberg at col. 31, lines 25-27).

Yamamoto generally discloses a solid lubricant including an adduct of isocyanuric acid or cyanuric acid (“(iso)cyanuric acid”) and melamine (“melamine/(iso)cyanuric acid adduct”). The melamine/(iso)cyanuric acid adduct may be incorporated in a conventional lube oil or grease, or an aqueous solution. (See Yamamoto at col. 1, line 59 – col. 2, line 10). The melamine/(iso)cyanuric acid adduct may be added, or dispersed, to a small

amount of water or a mixture of water and a water-soluble organic solvent. The water-soluble organic solvent may be ethyl alcohol, ethylene glycol, propylene glycol, diethylene glycol, isopropyl alcohol, glycerin, polyethylene glycol, and a copolymer of ethylene oxide and propylene oxide. (See Yamamoto at col. 4, lines 7-16 and col. 6, lines 21-30).

As reiterated by the Supreme Court in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007), the framework for the objective analysis for determining obviousness under 35 U.S.C. § 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Obviousness is a question of law based on underlying factual inquiries. The factual inquiries are: (a) determining the scope and content of the prior art; (b) ascertaining the differences between the claimed invention and the prior art; and (c) resolving the level of ordinary skill in the pertinent art. (See *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007); *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966); see also MPEP § 2141). The Supreme Court in *KSR* noted that the analysis supporting a rejection under 35 U.S.C. § 103 should be made explicit. The court stated that “rejections on obviousness cannot be sustained by mere conclusory statements; instead there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” (See *KSR*, 550 U.S. at 398, 82 UPSQ2d at 1396; see also MPEP § 2141).

Finally, the Federal Circuit has held that a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. (see *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert denied* 469 U.S. 851 (1984)).

Claim 1 recites an “inorganic solid lubricating agent.” However, Yamamoto explicitly discourages the use of an inorganic lubricant. Specifically, Yamamoto states that molybdenum disulfide and colloidal graphite (which are inorganic compounds) are not advantageous because they cannot be stably dispersed in a solvent or water without specially sophisticated technology due to their high specific gravity. (See Yamamoto at col. 1, lines 38-51). Yamamoto further states that a solid lubricant consisting only of an melamine/(iso)cyanuric acid adduct is cheaper than a conventional solid lubricant (such as an inorganic lubricant), and that compared with the conventional solid lubricant, the solid lubricant disclosed in Yamamoto provides high lubricating performance under high load, at high or low temperature, at low speed, under shock loading, under vacuum, and at high temperature and pressure. (See Yamamoto at col. 8, lines 5-17). One of ordinary skill in the art would not be motivated to combine the composition of Forsberg (which may include an inorganic compound, such as MoS₂ or carbon; see Forsberg at col. 31, lines 25-27) with the solid lubricant of Yamamoto (which discourages inorganic compounds) to arrive at the claimed invention.

The Office Action took the position that “while [Yamamoto] uses a different solid lubricant (other than molybdenum disulfide of Forsberg), the reference is presented to disclose the use of the ethylene glycol with a solid lubricant and that it is compatible with an isobutylene copolymer.” (See Office Action at page 7). However, the Office Action’s reasoning is not consistent with Federal Circuit precedent which requires the Office to consider a prior art reference as a whole, including portions that would lead away from the claimed invention, because it only focuses on a specific portion of the disclosure of Yamamoto, and does not take into consideration that Yamamoto strongly discourages the use of inorganic lubricants. When Yamamoto is considered as a whole, it is clear that Yamamoto teaches away from the claimed invention comprising, in part, “an inorganic solid lubricant agent.”

Therefore, Applicants respectfully submit that one of ordinary skill in the art would not have found independent claim 1 obvious, in light of Forsberg and Yamamoto, because Yamamoto teaches away from “an inorganic solid lubricating agent,” as recited in independent claim 1. Therefore, for at least the reasons discussed above, the Office Action has failed to establish a prima facie case of obviousness, because the cited reference of Yamamoto, when considered as a whole, teaches away from the claimed invention.

Claims 2-5 depend upon independent claim 1. Thus, Applicants respectfully submit that claims 2-5 should be allowed for at least their dependence upon independent claim 1, and for the specific elements recited therein.

For at least the reasons discussed above, Applicants respectfully submit that the claims recite allowable subject matter. It is therefore respectfully requested that all of claims 1-5 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,


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